

**REMARKS**

Claims 1-20, 22-28 and 34-41 are pending in the present application. Claims 1-20, 25, 40 and 41 are canceled herein without prejudice. Claims 22 and 23 are amended herein for clarity to more particularly define the invention. Support for the amendments to claims 22 and 23 is found in the language of original claims 8 and 23 and throughout the specification. For example, support for the amendment to claim 22 is found at least on page 6, second paragraph, and throughout the Examples. Applicants submit that no new matter is introduced by these amendments and their entry and consideration are respectfully requested.

In light of the amendments and the following remarks, Applicants respectfully request reconsideration of this application and allowance of the pending claims to issue.

**Recordation of Interview Summary in accordance with M.P.E.P. § 713.04**

Applicants wish to make of record the Interview Summaries prepared and submitted to Applicants by Examiner Cole on July 6, 2007. Applicants concur that these Interview Summaries accurately reflect the substance of the telephone interviews on June 18, 2007 and June 27, 2007, in which Examiner Cole and Applicants' representative, Dr. Lori W. Herman, and foreign counsel, Dr. Nikolai F. Hartz, participated.

**Rejection of Claims 22-23, 26-28, 35-39 and 41 under 35 U.S.C. §102(b)/103(a) Over Erdos**

Claims 22-23, 26-28, 35-39 and 41 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by, or in the alternative, under 35 U.S.C. §103(a), as allegedly being obvious over U.S. Patent Application Publication No. 2002/0056510 to Erdos et al. (hereinafter, "Erdos"). *Office Action*, page 2. The Office Action alleges that Erdos discloses an elastic nonwoven fabric laminate, and that the laminate has a CD elongation of at least 120% and recovery of at least 80% after elongation of 100%. *Id.*

Claim 41 is canceled herein without prejudice, thereby rendering the present rejection moot as it applies to this claim. Therefore, Applicants will only address the rejection as it applies to claims 22-23, 26-28 and 35-39.

Applicants respectfully submit that claims 22-23, 26-28 and 35-39 are patentable over Erdos for at least the reasons described in Applicants' response to the Office Action dated September 15, 2006 (Response dated February 14, 2007). In order to expedite prosecution of this Application, Applicants have amended the claims to recite that the elasticity of the nonwoven web is imparted by the recited process steps. For example, claim 22, as currently presented, recites (emphasis added):

22. An elastic thermally bonded nonwoven web consisting essentially of polypropylene fibers, which has an elasticity in the cross direction of  
at least 70% recovery from a 100% elongation, and  
at least 60% recovery from a 150% elongation, wherein *the elasticity of the nonwoven web is imparted by a process* comprising the following steps:

- (a) providing a thermally bonded nonwoven precursor web consisting essentially of polypropylene fibers; and
- (b) subjecting the precursor web of step (a) to a drawing treatment in a machine direction at a drawing rate of from 45 to 70 %, and a strain rate within a range of from 1000 to 2400 %/min at a temperature between the softening point and the melting point of the fibers for preparing the elastic thermally bonded nonwoven web.

During Applicants' interview with Examiner Cole on June 18, 2007, Examiner Cole indicated, as reflected in the corresponding Interview Summary, that she would deem claims 22-23, 26-28 and 35-39 to be patentable over Erdos if the claims recited that the elasticity of the nonwoven web is imparted by the recited process steps. As the claims now include such a recitation, Applicants believe the present rejection is now overcome and respectfully request its withdrawal.

**Rejection of Claims 22-28, 34-39 and 41 under**  
**35 U.S.C. §103(a) over Erdos In View of Morman**

Claims 22-28, 34-39 and 41 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious over Erdos in view of U.S. Patent Application Publication 2003/0100238 to Morman et al. ("Morman"). *Office Action*, page 3. The Office Action alleges that Erdos discloses an elastic fabric laminate, but that it does not teach employing conjugate fibers in the nonwoven. *Id.* However, the Office Action alleges that Morman teaches that bicomponent fibers can be employed in forming nonwovens comprising polypropylene that have elastic properties. *Id.* The Office Action further alleges that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed bicomponent fibers in the nonwoven of Erdos, allegedly motivated by the teaching of Morman that such fibers were useful in forming elastic nonwovens and by the expectation that the use of bicomponent fibers would facilitate bonding within the nonwoven while maintaining the strength of fabric. *Id.*

Claims 25 and 41 are canceled herein without prejudice, thereby rendering the present rejection moot as it applies to these claims. Therefore, Applicants will only address the rejection as it applies to claims 22-24, 26-28 and 34-39.

Applicants respectfully submit that Erdos does not teach or suggest the recitations of claims 22-24, 26-28 and 34-39 for at least the reasons described in Applicants' response to the Office Action dated September 15, 2006 (Response dated February 14, 2007). Nonetheless, in order to expedite prosecution of this Application, Applicants have amended the claims to recite that the elasticity of the nonwoven web is imparted by the recited process steps.

As described above, Examiner Cole has indicated that she would deem claims 22-24, 26-28 and 34-39 to be patentable over Erdos if the claims recited that the elasticity of the nonwoven web is imparted by the recited process steps. Therefore, Applicants believe that Examiner Cole now agrees that Erdos does not teach or suggest the recitations of claims 22-24, 26-28 and 34-39,

as amended. The Office Action only cites Morman for the alleged teaching that bicomponent fibers can be employed in forming nonwovens comprising polypropylene that have elastic properties. As such, Morman does not remedy the deficiencies of Erdos, and thus, claims 22-24, 26-28 and 34-39 are patentable over Erdos in view of Morman. Applicants believe the present rejection is now overcome and respectfully request its withdrawal.

**Rejection of Claim 41 over Morman**

Claim 41 stands rejected under 35 U.S.C. §102(e) and §102(a) as allegedly being anticipated by Morman. *Office Action*, page 4.

Claim 41 is canceled herein without prejudice, thereby rendering the present rejection moot. Applicants therefore request that this rejection be withdrawn.

**Rejection of Claims 22-28, 34-39 and 41 under  
35 U.S.C. §102(a and e)/103(a) in view of Morman**

Claims 22-28, 34-39 and 41 stand rejected under 35 U.S.C. §102(a and e) as anticipated, or in the alternative, under 35 U.S.C. §103(a) as obvious over Morman. *Office Action*, page 5. The Office Action alleges that Morman discloses an elastic thermally bonded web which has an elasticity such that it can be stretched to about 150 percent with an 83 percent recovery. *Id.* The Office Action further alleges that Morman discloses a process of heating and drawing the fabric in order to impart elasticity to the fabric. However, the Office Action admits that Morman does not disclose the claimed drawing ratio or strain rate. *Id.* Nevertheless, the Office Action alleges that because the instant claims are drawn to a product, not a process, the burden is shifted to the Applicant to come forward with evidence showing that any process differences result in an unobvious difference between the claimed invention and the prior art invention. *Id.*

Claims 25 and 41 are canceled herein without prejudice, thereby rendering the present rejection moot as it applies to these claims. Therefore, Applicants will only address the rejection as it applies to claims 22-24, 26-28 and 34-39.

At the outset, Applicants submit that claims 22-24, 26-28 and 34-39 are not anticipated by or obvious over Morman for at least the reason that Morman does not teach or enable a nonwoven web that has an elasticity in the cross direction of at least 70% recovery from a 100% elongation, and at least 60% recovery from a 150% elongation.

The Office Action alleges that, based on paragraph 57 of Morman, Morman describes nonwoven webs that can be stretched to 150% with a recovery of 83%. However, Applicants submit that paragraph 57 only provides a hypothetical example provided to teach the relevant calculations. Paragraph 57 of Morman states:

The relation between the original width of the neckable material 12 to its width after tensioning determines the stretch limits of the reversibly necked material 22. For **example**, with reference to FIG. 1 **if** it is desired to prepare a reversibly necked material that can be stretched to a 150 percent elongation (i.e., 250 percent of its necked width) and can recover to within about 25 percent of its neckable width, a neckable material having a width "A" such as, for example, 250 cm, is tensioned so that it necks down to a width A' of about 100cm for a percent neck or percent neckdown of about 60 percent. While tensioned, it is heat treated to maintain its reversibly necked configuration 22. The resulting reversibly necked material has a width A' of about 100 cm and is stretchable to at least the original 250 cm dimension "A" of the neckable material for an elongation or percent stretch of about 150 percent. The reversibly necked material **may** return to within about 25 percent of its necked width of about 100 cm (i.e., to a width of about 125 cm) after release of the stretching force for a recovery of about 83 percent. (emphasis added)

Applicants assertion that paragraph 57 describes an example calculation is based not only on the wording of paragraph 57, but also on a reading of *Morman* as a whole and on the knowledge of one of ordinary skill in the art.

First, *Morman* provides no experimental parameters that would provide a nonwoven web having the properties described in paragraph 57. In addition, Applicants note that *Morman* teaches “a neckable nonwoven material having cross-directional nonuniformity which facilitates easier necking in the central region than in the two edge regions of the nonwoven web.” *Morman*, para. 25. This cross-directional nonuniformity can be achieved by varying the interfiber bond pattern between the two edge regions (*Morman*, para. 27); varying the physical properties of the fibers between the central region and the two edge regions (*Morman*, para. 28); and varying the chemical composition of the fibers in the central region from the polymer composition of the fibers in the two edge regions (*Morman*, para. 29). *Morman* is not directed toward processes for increasing elongation or recovery and so does not teach or suggest any drawing method that is not a conventional drawing process. *Morman* even describes the general necking process illustrated in Figure 1 as “conventional.” Applicants submit that at the time *Morman*’s application was filed, for a nonwoven thermally bonded web consisting essentially of nonelastomeric fibers, an 83% recovery from an elongation of 150% would **not** have been conventional. Attached herewith is a declaration from Dr. De-Sheng Tsai (hereinafter, “the Tsai Declaration”), a co-inventor on this application, describing how conventional necking processes would not result in the properties described in paragraph 57 of *Morman*. Therefore, Applicants submit that based on a reading of *Morman* as a whole and on the knowledge of one of ordinary skill in the art, as evidenced by the Tsai Declaration, paragraph 57 can only be read to be a hypothetical example illustrating particular calculations.

In addition, Applicants submit that even assuming *arguendo* that paragraph 57 both taught and enabled a nonwoven thermally bonded web consisting essentially of polypropylene fibers and having an elasticity in the cross direction of at least 70% recovery from a 100%, and at

least 60% recovery from a 150% elongation, the process steps recited in claims 22-24, 26-28 and 34-39 result in a nonobvious difference between the claimed nonwoven webs and those described in Morman. For example, Morman explicitly states that its nonwoven webs cannot be stretched greater than the width of the original prenecked material. In contrast the nonwoven webs of claims 22-24, 26-28 and 34-39 can be stretched greater than the width of the original prenecked material. Applicants submit that this indicates a substantial difference between the recited nonwoven webs and the nonwoven webs described in Morman.

More specifically, at paragraph 17, Morman states that “[g]enerally speaking, extension of the reversibly necked material is substantially limited to extension to its prenecked dimensions.” Additionally, paragraph 17 states that “unless the material is elastic, extension too far beyond its pre-necked conditions will result in material failure” (emphasis added). Furthermore, at Morman, paragraph 57, it is stated that the “relation between the original width of the neckable material 12 to its width after tensioning determines the stretch limits of the reversibly necked material 22.”

In contrast, the nonwoven webs recited in claims 22-24, 26-28 and 34-39 can be stretched in the cross direction significantly greater than the width of the original prenecked material, as illustrated in Table 5 of the present application (page 12). In order to emphasize the relevant portions of Table 5, Applicants provide below a table demonstrating how the data from Table 5 shows that the nonwoven webs can be stretched significantly greater than the prenecked dimensions. For illustrative purposes, Applicants have assumed a prenecked width of 250 cm, the width used in paragraph 57 of Morman. Applicants stress that this table does not include any new matter, but only provides values that can be calculated from the data provided in Table 5 of the present application, assuming a prenecked width of 250 cm.

	prenecked nonwoven width (cm)	postnecked nonwoven width (cm)	elongated (cm)	elongation in excess of original width (cm)	elongation at break (cm)
spunbond	250	120 (52% reduction)	300 (150%)	50 (20%)	334 (34% in excess of original width)
carded	250	115 (54% reduction)	287.5 (150%)	37.5 (15%)	357 (43% in excess of original width)
SMS	250	117.5 (53% reduction)	293.75 (150%)	43.75 (17.5%)	341 (36% in excess of original width)
SMMS	250	125 (50% reduction)	312.5 (150%)	62 (25%)	360 (44% in excess of original width)

For the Examiner's convenience, Applicants will walk through the calculations used to create the table above from the data provided in Table 5 of the instant specification. For the spunbond nonwoven web, if the prenecked nonwoven web has a width of 250 cm, a 52% width reduction (per Table 5 of the specification) would result in a postnecked width of 120 cm. If the resulting nonwoven web is elongated by 150% (again, per Table 5), its resulting width would be 300 cm. 300 cm is greater than the prenecked width of 250 cm by 50 cm (or 20%). Furthermore, Table 5 indicates that the elongation at break in the cross direction is +178%, so that at break, the nonwoven web would be 334 cm, which is 34% greater than the prenecked width. The calculations for the carded, SMS, and SMMS examples were performed in the same manner.

Thus, as is evident from this table, all of the examples from Table 5 describe nonwoven webs having an elongation at break substantially greater than the prenecked width. As Morman



indicates, prior to the present invention, to achieve such elongation of nonwoven webs, it was generally thought to require elastomeric fibers (*See* Morman, para. 17). The process steps recited in claims 22-24, 26-28 and 34-39 create nonwoven webs that have surprisingly elastic properties, even in the absence of elastomeric fibers.

As the corresponding Interview Summary reflects, in the Interview of June 27, 2007, Examiner Cole argued that a showing of the differences between the nonwoven webs of the present invention and the nonwoven webs described in Morman has to be commensurate in scope with the claims. In response thereto, Applicants submit that the process steps recited in 22-24, 26-28 and 34-39 would result in nonwoven webs having the recited elastic properties regardless of the type of nonelastomeric fibers used, and thus, Applicants reserve the right to prosecute claims to nonwoven webs consisting essentially of nonelastomeric fibers, as previously recited. However, in order to expedite the prosecution of this Application, Applicants have amended the claims to recite nonwoven webs consisting essentially of polypropylene fibers.

As described in the Tsai Declaration, all of the spunbond, SMS and SMMS nonwoven webs described in Table 5 of the specification were formed of polypropylene fibers. Therefore, the spunbond, SMS and SMMS webs in Table 5 have the properties recited in 22-24, 26-28 and 34-39 and have an elongation at break significantly greater than the prenecked width. Therefore, Applicants believe there is ample support for the patentability of the presently recited nonwoven webs over the nonwoven webs described in Morman. As such, Applicants believe this rejection is overcome and respectfully request its withdrawal.

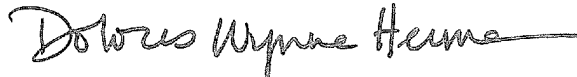
### **CONCLUSION**

Having addressed all of the issues raised by the Examiner in the pending Office Action, Applicants believe that the claims as presented herein are in condition for allowance, which action is respectfully requested. The Examiner is invited and encouraged to contact the undersigned directly if such contact will expedite the prosecution of the pending claims to issue.

ATTORNEY DOCKET NO. 9286-32  
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A petition and fee for one month extension is enclosed with this response. The Commissioner is authorized to charge any deficiency associated with this filing or credit any overpayment to Deposit Account No. 50-0220.

Respectfully submitted,



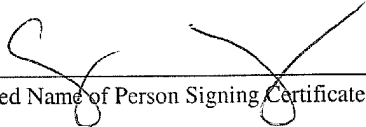
Dolores Wynne Herman  
Registration No. 51,800

**Customer Number 20792**

Myers Bigel Sibley & Sajovec, P.A.  
P.O. Box 37428  
Raleigh, NC 27627  
919-854-1400  
919-854-1401 (Fax)

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Typed or Printed Name of Person Signing Certificate: Carey Gregory

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Tsai et al.

Examiner: Elizabeth M. Cole

Application Serial No.: 10/780,781

Group Art Unit: 1771

Filing Date: February 18, 2004

Confirmation No. 2750

For: *PROCESS FOR PREPARING AN ELASTIC NONWOVEN WEB*

Commissioner for Patents

PO Box 1450

Alexandria, VA 22313-1450

**Declaration Under 37 C.F.R § 1.132**  
**of De-Sheng Tsai, Ph.D.**

I, De-Sheng Tsai, Ph.D., do hereby declare and say as follows:

1. I am currently a Research Fellow with DuPont™ Nonwovens. I obtained my Ph.D. in Plant Physiology from the Pennsylvania State University and my Bachelors of Science in Horticulture with training in analytic chemistry and organic chemistry from the National Taiwan University in Taiwan.

2. My expertise and research interests lie in the areas of processing and characterizing polymeric materials since 1995.

3. I am a named inventor on U.S. Patent Application Serial No. 10/780,781 ("the present application").

4. The SMS nonwoven fabrics and precursor webs described in Examples 1 and 2 of the present application were formed from polypropylene fibers.

5. In Examples 3-6 of the present application, the spunbond, SMS and SMMS nonwoven webs were formed from polypropylene fibers. The carded nonwoven webs were formed from bicomponent fibers having a core formed from polypropylene and a sheath formed from polyethylene.

5. I have read and understood the Morman et al. publication (U.S. Patent Application Publication No. 2003/0100238) cited by the Examiner in connection with the present application.


6. Morman et al. describes that, except for the composition and/or properties of the fibers in certain portions of the web, the basic features of its necking processes are conventional. However, as of the date that Morman et al. filed their application,

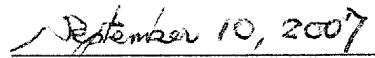
In re: Tsai et al.  
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Filed: February 18, 2004  
Page 2 of 2

conventional processes did not result in nonwoven webs (that only included nonelastomeric fibers) having the properties described in paragraph 57 of Morman, namely >83% recovery from a 150% elongation. The present application describes conventional methods used to impart elasticity to nonwoven webs prior to the filing of the present application. For example, as the present application indicates on pages 2 and 3, U.S. Patent No. 5,244,482 and EP 0,844,323 both describe processes for imparting elasticity to nonwoven webs, but were only show a 40% recovery at 100% elongation and 85% recovery at 50% elongation, respectively.

7. Morman et al. does not provide any new or unusual processing techniques that could have lead to such an unusual elasticity (>83% recovery from a 150% elongation). Furthermore, Morman et al. did not describe that it achieved new or better elasticities, nor was it directed toward methods of achieving increased elasticity or recovery. Therefore, based on my knowledge of nonwoven webs and their processing, I do not believe that Morman could have achieved such elastic properties using the processes it describes, and as such, I believe paragraph 57 of Morman is only a hypothetical example used to illustrate the particular calculations.

6. I do hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

  
De-Sheng Tsai, Ph.D.

  
Date